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ABSTRACT

The theory that language acquisition is guided and constrained by inborn linguistic knowledge is assessed. Specifically, the "no negative evidence" view, the belief that linguistic theory should be restricted in such a way that the grammars it allows can be learned by children on the basis of positive evidence only, is explored. Child language data are cited in order to investigate influential innatist approaches to language acquisition. Baker's view that children are innately constrained in significant ways with respect to language acquisition is evaluated. Evidence indicates that children persistently make overgeneralizations of the sort that violate the constrained view of language acquisition. Since children eventually do develop correct adult grammar, they must have other mechanisms for cutting back on these overgeneralizations. Thus, any hypothesized constraints cannot be justified on grounds that without them the child would end up with overly general grammar. It is necessary to explicate the mechanisms by which children eliminate their tendency toward overgeneralization. (RW)

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HOW DO CHILDREN AVOID CONSTRUCTING AN OVERLY GENERAL GRAMMAR IN THE ABSENCE OF FEEDBACK ABOUT WHAT IS NOT A SENTENCE?

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In the continuing theoretical debate about whether language acquisition is guided and constrained by inborn linguistic knowledge, an important new line of argumentation has recently appeared in the innatist literature. This argumentation revolves around a fascinating logical puzzle that has become known as the "no negative evidence" problem. The problem was first identified by Braine in 1971. Interestingly, however, Braine did not use it in support of the innatist approach, but rather to criticize it. That the innatist camp has been able to adapt the argument for its own use suggests that Braine's puzzle transcends party lines. Indeed, I believe it constitutes one of the most intriguing and difficult challenges for all students of language acquisition regardless of their theoretical orientation.

Several different types of hypotheses for solving the problem have by now been put forward. However, the predictions that can be drawn from these hypotheses have not, to my knowledge, been carefully tested yet. The main purpose of the present paper, accordingly, is to examine an influential current innatist approach to the problem in the light of some relevant child language data. Some briefer comments about the viability of several noninnatist alternatives will also be offered.

Statement of the problem

Children's acquisition of language can be characterized as a process of constructing an internal grammar. How does this process take place? In the innatist program as originally formulated by Chomsky, the child was seen as using incoming language data, together with innate linguistic knowledge, to formulate hypotheses about possible grammatical rules of the language. He would then test these hypotheses against further data, discarding or revising as necessary, and eventually apply an evaluation metric to any surviving candidate grammars in order to select the best one.

Braine's critique of this proposal was based on his observation that there is a critical discrepancy between the kind of data needed for a hypothesis testing procedure to work and the kind of data children actually receive. Hypothesis testing requires feedback about the correctness of predictions, pointed out Braine. In particular, it requires evidence not only about what is an instance of what is to be learned (an acceptable sentence of the language, in this case), but also about what is not. Negative evidence is essential to allow the learner to revise hypothesized rules that are overinclusive, in that they generate all acceptable instances (sentences) and err only in that they also generate unacceptable ones (sentences that fluent speakers find ill-formed).

Language is full of partial regularities that might suggest attractive but ultimately overinclusive hypotheses to children. Consider, for

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instance, the following sentences (adapted from Baker, 1979):

1a. Dad told a story to Sue.	1b. Dad told Sue a story.
2a. I gave a book to John	2b. I gave John a book.
3a. Jim showed the model to Bob.	3b. Jim showed Bob the model.
4a. Mom baked a cake for Jack.	4b. Mom baked Jack a cake.

A child exposed to a variety of sentences such as these might well come to see a relationship between the (a) and (b) versions. He might conclude that, given a sentence of the (a) form, and perhaps with a verb semantically similar to one or more of the verbs shown, he can convert it into the (b) form (corresponding to various linguists' proposed rule(s) for an optional Dative Movement transformation). The child would accordingly produce many well-formed novel (b) sentences such as I sent my cousin a birthday present and Linda knitted me a sweater. But he would also produce sentences that fluent speakers find unacceptable, for example the (b) forms below:

5a. Dad said something nice to Sue.	5b.*Dad said Sue something nice.
6a. I reported the death to the police.	6b.*I reported the police the death.
7a. I donated a book to the library.	7b.*I donated the library a book.
8a. Jim demonstrated the model to Bob.	8b.*Jim demonstrated Bob the model.
9a. Mom buttoned the coat for Jack.	9b.*Mom buttoned Jack the coat.

If the child is testing a hypothesized rule of Dative Movement, how would he learn that say, demonstrate, etc. are exceptions to this rule? This would seem to require someone telling him that sentences like those above are not possible. Otherwise he would have no reason to alter his hypothesis. But do children in fact get information of this type? After reviewing the available data, Braine concluded that negative evidence is rare in input to children; moreover, children appear to be relatively impervious to what little correction they do receive. In the 12 years since Braine wrote, studies of input to children learning language around the world have proliferated. But despite much emphasis on what such input has--e.g., simplified structures with potentially tutorial properties--Braine's observation about what it critically lacks--negative evidence--has been repeatedly confirmed (see Slobin, 1975, and Wexler & Culicover, 1980, for relevant reviews).

In light of the lack of negative evidence available to children, argued Braine, the hypothesis-testing approach advanced by Chomsky and his followers cannot be correct. The child must acquire language with procedures for which positive evidence alone--i.e., exposure to sentences of the language--is sufficient. Braine's proposal concerning these procedures will be considered in a later section.

The no negative evidence problem received little, if any, active consideration in the years immediately after Braine's discussion. But the problem was finally revived and refocussed in an important article by Baker (1979). Baker concurred with Braine's assessment that children have no reliable and systematic access to information about what is not

a sentence, and that an adequate model of language acquisition must therefore equip the child so that she can arrive at the adult grammar on the basis of positive evidence alone. However, argued Baker, this situation is not damning to the innatist approach as a whole, but only to frameworks of grammatical description that allow for rules of a type that apparently could not be acquired by children on the basis of the evidence available to them. Baker observed further that the no negative evidence problem also presents serious difficulties for any theory of language acquisition based on learning by generalization. Sentences 5a-9a are "similar" in many important respects to sentences 1a-4a. Why, therefore, do fluent speakers have the firm conviction that 5b-9b are not possible sentences of English, given the acceptability of 1b-4b? What blocks the generalization? This point is very important, since it makes clear that the unavailability to children of negative evidence is a major problem for theorists who argue that the human capacity to detect regularities and generalize them to new instances is sufficient to account for the acquisition of language structures.

Baker suggested that not all overgeneralizations are troublesome with respect to a theory of language acquisition. He distinguished between rule exceptions that are "benign", in that errors involving them can be corrected even in the absence of negative evidence, and those that are "embarrassing", in that their correction seems logically to depend on evidence of a type that children do not regularly receive. Errors involving benign exceptions include the well-known overgeneralizations of inflectional morphology: runned, foots, etc. Positive evidence alone--the consistent exposure to the irregular adult forms in contexts where the child is using overregularizations--is at least in principle sufficient to show the child that her form is wrong. In the case of embarrassing exceptions, however, the incorrect overregularized form does not have an exact irregular counterpart. This means that there is no kind of positive evidence that can logically be taken as an indication that a particular form is an exception to the rule. In the case of Dative Movement, for example, the child who on a particular occasion says 5b above might well hear other speakers say 5a instead. But this cannot be taken as evidence that 5b is not possible, any more than hearing 1a counts as evidence against the well-formedness of 1b. In general, observed Baker, benign exceptions are those that involve obligatory rules while embarrassing exceptions involve rules characterized as optional. The number of rules with embarrassing exceptions is not small: as Baker emphasized, the problem in fact affects a very large proportion of the rules that have been proposed in classical transformational theory.

The innatist approach: constrain the child

Baker, along with a number of other theorists (see, for example, chapters in Baker & McCarthy, 1981) has taken the no negative evidence problem as strong evidence that children are innately constrained in significant ways with respect to language acquisition. If certain hypotheses or generalizations about language structure are incorrect, but, once made, could not be corrected except by evidence of a type that

is not available to children, then there must be something that keeps children from making them. Different theorists have suggested different types of constraints, depending in part on what domain of grammar they are concerned with.

In the present paper, we will examine the approach pursued by Baker, among others. Baker's proposal was to use hypothesized limitations on what kinds of grammatical rules children can learn, given the unavailability of negative evidence, to constrain linguistic theory. Put the other way around, the idea is that linguistic theory should be tightened and restricted in such a way that the grammars it allows can be learned by children on the basis of positive evidence only. Attempts to narrow the range of permissible rules of grammar can, of course, also be phrased in terms of constraints on the child--i.e., the child is seen as so constituted that he will not entertain as a possible grammatical rule any rule which, if incorrect, could not subsequently be corrected on the basis of positive evidence alone.

The currently most thoroughly worked out and testable hypotheses about the way in which constraining the form of rules can help solve the no negative evidence problem fall within the lexicalist approach to grammatical theory. The lexicalist approach calls for a considerable reduction of the power of the syntactic component of grammar in favor of a richer lexicon. Of particular importance for present purposes is the proposal that rules with lexical exceptions (and certain other properties) should not be viewed as syntactic rules at all. Rather, the (partial) regularities that transformations such as Dative Movement and Passive had been designed to capture can be represented within the lexicon. A special device for doing this is the lexical redundancy rule (Jackendoff, 1975). This kind of rule states a relationship holding between lexical items that are already fully specified in the lexicon. Items to which the rule applies are marked accordingly; items to which it does not are simply left unmarked.

The lexicalist method of handling partial regularity in grammar has seemed to some investigators (e.g., Baker, 1979; Roeper et al., 1981) to provide a neat solution to the no negative evidence problem. If there are no general syntactic rules relating (for example) sentences with shifted and nonshifted datives, or actives and passives, then the child does not have to learn the (embarrassing) exceptions to the rules. Instead, he proceeds conservatively. Predicate by predicate, he waits for positive evidence that the form can appear in a given syntactic context. He will notice that give, for example, appears in both the subcategorization frame [_ NP to NP] and the frame [_ NP NP]. He will observe say, however, only in the frame [_ NP to NP]. If certain contexts are never encountered for a form, the child does not make the corresponding entry in his lexicon. His grammar will therefore never contain overly general rules that have embarrassing exceptions.

Counterevidence to the lexicalist solution

This solution is indeed simple and attractive on logical grounds. But does it work?

One immediately apparent problem is that the approach does not seem robust enough against misleading input. Children are often exposed

to errors in the speech they hear, especially when they have nonnative-speaking parents. Dutch speakers of English, for example, often use shifted datives with say and suggest (the Dutch cognate equivalents are grammatical). Once having heard and listed an incorrect syntactic frame for a verb, how could a child get rid of it? Is he doomed forever to a nonnative competence? This seems unlikely.

The kind of empirical data most obviously needed to test whether the lexicalist solution to the no negative evidence problem is on the right track is information about whether language learning children indeed proceed in the conservative, "no mistakes involving embarrassing exceptions" manner that the solution predicts. Linguists have rightly complained about the dearth of information in the child language literature about whether rules of the critical sorts are overgeneralized. In the absence of reports to the contrary, they have generally assumed that such errors are not made.

In fact, however, close observation of children's spontaneous speech turns up scores of them. A group of representative examples for each of five regularities with lexical exceptions that would be considered "embarrassing" by the terms of Baker's (1979) definition are shown in Table 1. Four involve regularities for which optional syntactic transformations have often been used in the past; the fifth involves a rule of word formation with embarrassing exceptions. Most of the errors come from my two daughters, Christy (C) and Eva (E), whose language development I studied longitudinally in close detail with special attention to errors (e.g., Bowerman, 1982 b). Some examples collected from other children are also included.

Space precludes extensive commentary and I hope that this is not needed in any event. Suffice it to say that each of these error sets gives evidence that children do make precisely the kinds of generalizations that the lexical approach to the no negative evidence problem attempts to preclude, on grounds that, once made, exceptions to such generalizations could never be identified and corrected by the child.

Evaluating some possible lines of defense

How damning are such examples to the innatist program for constraining the child so that "embarrassing" exceptions never have to be corrected? I believe they are very serious. But before drawing conclusions, let us consider some possible counterarguments.

Productivity for redundancy rules. Lexicalists who have not been specifically concerned with the no negative evidence problem have never been dismayed by the productive use of lexical redundancy rules (e.g., Jackendoff, 1975). Tolerance for productivity would appear to be necessary to accomodate the evidence that adult speakers occasionally produce passives, shifted datives, etc. for novel verbs. Perhaps, then, examples like those in Table 1 should be dismissed under an escape clause that allows speakers an occasional burst of creativity with what is basically a passive generalization over existing lexical entries.

This defense is untenable. First, only one of the utterances in Table 1 involves a novel verb (to scalp) whose properties are in principle open to creative negotiation. For the most part they are

TABLE 1

Children's overgeneralizations of rules
with embarrassing exceptions

A. Dative Movement.

1. C 3;1 I said her no.

2. C 3;6 Don't say me that or you'll make me cry.

3. C 3;9 I do what my horsie says me to do.

4. C 3;4 (Mother pouring medicine into a spoon; both C and E have to have two kinds of medicine)
Mother: Yukky one first.
C: Put Eva the yukky one first.
(Intervening actions and utterances)
C: Now put the good one to Eva.

5. C 3;4 Button me the rest. (Request to have the remaining snaps on her pyjamas fastened.)

B. Passive.

6. Girl 4 I don't like being falled down on! (from Wasow, 1981)

7. E 3;8 (Watching with delight while one child arranges self on potty and another sits down on toilet)
Both are going to be go-ened in! (=gone in. I.e., someone is going to go in both potties.)

8. C 3;6 If you don't put them in for a very long time they won't get staled. (Passive of novel causative [see C. below], to stale [something]. Re: crackers in a bread box.)

C. Lexical Causative. The regularity to which the verbs below are exceptions is exemplified by such intransitive/transitive causative pairs as The stick broke/I broke the stick, The door opened/I opened the door. (See Bowerman, 1982a,b, for more examples and discussion.)

9. Jennifer 6+ Do you want to see us disappear our heads?
(Then, with a friend, ducks down behind couch.)

10. Mindy 5;8
Mindy: These are nice beds.
Mother: Yes, they are.
Mindy: Enough to wish me that I had one of those beds.

11. E 5;3 This is aching my legs. (As climbs long flight of stairs.)

12. C 4;3 It always sweats me. (Refusing sweater.)

D. Spray-type verbs. The regularity here is exemplified by sentence pairs like these:

	a	b
...spray paint on the wall/spray the wall with paint.		
...load hay into the wagon/load the wagon with hay.		
...spread butter on the bread/spread the bread with butter.		

Hall (1965) proposed deriving the b forms from the a forms with an optional transformation for verbs of a certain semantic class. Certain verbs in this class are exceptions, however, in that they are "fixed" in either the a pattern (e.g., pour, spill) or the b pattern (e.g., cover, fill). Children err with these, occasionally using them in the wrong pattern. (See Bowerman, 1982b.)

13. E 4;5 I'm going to cover a screen over me. (=cover myself with a screen.)

14. E 5;0 Can I fill some salt into the bear? (=fill the bear [a salt shaker] with salt.)

15. E 2;11 (Waving empty container near Mother)
E: Pour, pour, pour. Mommy, I poured you.
Mother: You poured me?
E: Yeah, with water.

16. E 4;11 (Mother asks if E is going to finish toast)
I don't want it because I spilled it of orange juice.

E. Reversative un- prefixation. (See Bowerman, 1982b, for more examples and discussion.)

17. C 7;11 I'm gonna unhang it. (Taking stocking down from fireplace.)

18. E 3;11 How do you unsqueeze it? (Coming to Mother with clip earring hanging from ear, wants it off.)

Similarly: uncome (=stop coming), unhate (=stop hating), unsprinkle (=stop sprinking), uncapture (=release from capture), unslip (=slip [clasp] from closed to open position).

everyday verbs whose properties are well known and presumably adhered to in the speech children hear. As before, we are still stuck with the problem of how the child identifies them as exceptions. More generally, the very existence of a "creativity" escape clause destroys the very advantage claimed in the first place for the lexicalist approach as a solution to this problem. Once the door is opened a crack to productivity, how does the child know where to stop? (see also Wasow, 1981, on this point).

Analogy. Perhaps utterances like those in Table 1 do not actually reflect rule use. Instead, they may be on-the-spot analogies whereby the child momentarily "borrows" the legitimate syntactic or morphological privileges of a verb that is semantically similar to the one the child uses (see Maratsos, 1979:335 for suggestions along this line). If so, then there is no problem for the lexicalist solution. The child really does know what is possible for the form in question; her grammar is not overinclusive.

I do agree that some of children's apparent overgeneralizations may be passing analogies. But are all of them? This interpretation seems most plausible when errors of a given genre are quite infrequent and there are one or more closely related forms for the analogy to model itself on. Examples of this type in my data include errors in choice of verb complement, e.g., E 7;3: Christy insisted me to make a house (= that I should...; cf. forced, persuaded, told). At the other extreme are genres of errors that are relatively frequent and for which close models for particular instances are often lacking. These include error types C, D, and E in Table 1. Here the interpretation as passing analogies seems strained. Errors with passives and shifted datives fall into the middle range.

If, as I believe the data strongly indicate, at least some genres of children's overgeneralizations involving "embarrassing" exceptions are rule-governed and not mere analogies, then we have to credit children with some procedure(s), as yet undetermined, for eventually identifying the exceptions. And if children indeed have such procedure(s), then innate linguistic constraints designed to solve the no negative evidence problem are unnecessary.

A fallback position. Innatist theorists faced with clear-cut evidence that children do produce errors of a type their theory should prevent have on several occasions suggested the following line of defense (e.g., Baker, 1979): There is a general constraint, innately known, which serves to rule out the undesired overgeneralizations. However, the child does not yet know that the forms on which he errs fall into the category of items that are subject to this constraint. As soon as he does get the forms properly classified, the errors will automatically drop out.

A general difficulty that makes this argument suspect is that it can serve to reconcile the theory with any data, no matter how uncooperative (Matthews, 1983). A problem more specific to the kinds of errors examined in this paper is that items constituting exceptions to a given rule in one language are not necessarily exceptions in

related languages (cf. say and suggest as nonexceptions to Dative Movement in Dutch). This makes it a real challenge to equip the child with a universal constraint strong enough to block the undesirable overgeneralizations in the language under study without at the same time ruling out or at least labelling as "marked" or unusual what appear to be wholly normal constructions in other languages.

To sum up: the various arguments I have presented indicate that the attempt to solve the no negative evidence problem along lines suggested by the lexicalist approach to representing partial regularities is untenable. Of course, the lexicalist position might still be preferable on other grounds (although see Bowerman, 1982a, for some questions about this). But the no negative evidence problem is still very much with us.

Noninnatist approaches to the problem

This brings us finally to the question of whether after all there might not be satisfactory solutions to the no negative evidence problem without invoking innate linguistic constraints on the child. I do not think we have a completely satisfactory answer as yet, but I suspect that the best solution will ultimately lie here.

Is there negative feedback after all? Many people, I think, are not convinced that children don't get the necessary corrective feedback. They question whether the no negative evidence problem is not in fact spurious. While there seems to be little doubt that children's conversational partners rarely say "You can't say that" and the like, they may often give more subtle cues that something is wrong, such as not understanding, saying what?, huh?, etc.

I am inclined to doubt that children get anywhere near a systematic enough diet of such clues to call their attention to all their overgeneralizations. However, even if they did, the problem is that feedback of this kind cannot tell the child what is wrong. Misunderstandings and what? responses have a great many causes (e.g., failure to hear, failure to command the necessary presupposed information, etc.). It would be a foolish child indeed who immediately questioned the grammatical correctness of her utterance in the face of such unfocussed feedback. Further, even if she did at least at times suspect that the problem lay with her grammar, how would she determine which part of the sentence is the offender, and for what reason? These considerations suggest that the lack of negative feedback is, after all, a real problem.

Braine's proposal. Braine's (1971) empiricist solution to the no negative evidence problem equipped the child with "discovery procedures" that register the properties of incoming sentences. As properties are repeatedly registered, they are passed along a series of intermediate memory stores until they reach permanent memory. Since very general properties will be encountered the most often, they will reach permanent memory first. Acquisition beyond this point consists of registering more detailed information, e.g., about the contexts in which specific lexical items appear. If any rule arriving early in permanent memory is overly general, it will eventually be replaced by more specific ones, applying to particular words or sets of words, that come to stand before it.

This model, though ingenious, does not make the right predictions about the timing of children's errors. The prediction would be that any overgeneralizations that a child is going to make with respect to a given domain of grammar would be made early, before lexically-specific information has been registered. Once such information has been registered, the errors will drop out. In fact, however, most of children's overgeneralizations follow the opposite course (see Bowerman, 1982b, for discussion). The child first treats individual lexical items, whether exceptional or nonexceptional, with remarkable syntactic and morphological accuracy. This lexically-specific stage of learning is followed by the extraction of generalizations. Once the generalizations are made, errors begin. The errors thus do not reflect initial ignorance of the handling of specific words, which could be corrected simply by further learning of the relevant details, but rather the overriding of initial lexically-specific knowledge.

"Indirect" negative evidence. Braine observed that there was, in principle, a way for the hypothesis-testing child to reject an overly general rule even without explicit negative feedback. This was for the child to keep track of the contexts in which particular forms don't occur (or occur very rarely, to allow for the possibility of errors in the input), along with those in which they do. Braine rejected this solution on grounds that, given the amount of irregularity in language, the burden of keeping watch for vast numbers of special types of strings and computing ratios of frequent to rare or nonexistent constructions would be overwhelming.

While I concur with Braine that it is unlikely that children are continually noticing nonoccurrences as well as occurrences, I think that the idea is nevertheless worth a second look (see also Maratsos & Chalkley, 1980: 203; Chomsky, 1981: 8-9). What is needed is some explanation for why nonoccurrences of the relevant types should be noticed by the child.

At the time when Braine wrote, linguists tended to minimize any meaning differences between strings considered to be transformational variants of each other. Thus, any context suitable for a shifted dative, for example, would also be considered suitable for a nonshifted dative. If meaning differences are minimal or nonexistent, then hearing Don't say that to me! indeed cannot logically be regarded as evidence against Don't say me that!, and it would be surprising if the child would pay any attention to which form did not occur on a particular occasion.

Over the last decade, however, there has been increasing emphasis on meaning differences between syntactically related forms. The choice between shifted and nonshifted datives, for example, and between actives and passives, is clearly responsive at least in part to discourse considerations involving contrasts between given/new, backgrounded/foregrounded, and the like. If apparently related forms are typically found in different contexts, then repeatedly not hearing the form you expect in a given context, especially coupled with hearing the contrastive form that you did not expect--even counterpredicted--might make the nonoccurrence relatively salient.

By way of example, let us look at causative verb errors like those

shown under C in Table 1. A child who uses disappear (for example) as a causative transitive verb must learn to inhibit this construction in favor of a periphrastic, make disappear. Why would she do this if no one tells her that to disappear something is incorrect? Lexical and periphrastic causatives, as general construction types, are distributed into rather different contexts in adult speech: lexical causatives are typically used when the causation is relatively direct, e.g., brought about by an agent who physically manipulates the causee, while periphrastic causatives are preferred when the causation is indirect, e.g., by command (Shibatani, 1976). Once a child has learned this general distinction, she will choose between lexical and periphrastic causatives on particular occasions on a principled basis. Most of the time she will be correct. But notice what happens with disappear (and many others like it). On watching a magician physically manipulating a rabbit so that it vanishes (direct causation) she might reasonably say The magician disappeared the rabbit (lexical causative). But not only will she never hear this predicted form from adults, but also, perhaps equally important, she will hear, in its place, the periphrastic causative form she implicitly assumed was not appropriate, given the directness of the causation.

The availability to the child, at least in principle, of relatively salient indirect negative evidence of this type could account for the eventual identification of exceptions to generalizations of a variety of types, including those exemplified by the errors under A-D in Table 1. But exceptions to generalizations of other types seem somewhat resistant to this approach. For example, it is unclear to me that verbs prefixed with un- and their alternatives (e.g., unwrap vs. take the wrapping off) distribute into different contexts on a principled enough basis that the child would ever incorrectly predict an un- form (e.g., unhang) and then be struck by the fact that she only heard the counterpredicted alternatives (e.g., take down off/from) in these contexts. In sum, then, the indirect negative evidence approach seems to have promise, but it is not yet a panacea for the no negative evidence problem.

Conclusions

Two conclusions are in order. First, I would argue that we need to sever the assumed theoretical link between the search for innate linguistic knowledge and the no negative evidence problem. The no negative evidence problem has inspired many innatist theorists and has been repeatedly invoked to justify one or another hypothesis concerning inborn linguistic constraints. But the evidence is that children persistently make "embarrassing" overgeneralizations of the sort that at least certain proposed constraints are explicitly designed to circumvent. Since children eventually do end up with the correct adult grammar, even though they probably indeed do not receive much explicit negative feedback, we must assume that they have some other mechanism(s) for cutting back on these overgeneralizations. I should like to emphasize that this conclusion does not mean that the effort to determine whether aspects of language are innate is in general ill-conceived or unnecessary.

But it does, I would argue, mean that any hypothesized constraints cannot be justified on grounds that without them the child would end up with an overly general grammar.

Second, we need to pay closer attention to what children's "cutting back" mechanisms might be. I have suggested that "indirect" negative evidence may play a role, but I am not certain whether this is sufficient. Are different mechanisms available for overgeneralizations of different types, or is there one procedure that can be applied everywhere? Additionally, it would be important to know whether the no negative evidence problem is specific to language acquisition or has parallels elsewhere in cognitive development. If there are such parallels, then children's procedure(s) for identifying exceptions to linguistic overgeneralizations may be traceable to a much more general cognitive capacity to cope with irregularity.

References

Baker, C.L. Syntactic theory and the projection problem. Linguistic Inquiry, 1979, 10, 533-581.

Baker, C.L. & McCarthy, J.J. (Eds.). The logical problem of language acquisition. Cambridge, Mass.: MIT Press, 1981.

Bowerman, M. Evaluating competing linguistic models with language acquisition data: Implications of developmental errors with causative verbs. Quaderni di Semantica, 1982, 3, 5-66. (a)

Bowerman, M. Reorganizational processes in lexical and syntactic development. In E. Wanner & L. Gleitman (Eds.), Language acquisition: The state of the art. Cambridge, England: Cambridge University Press, 1982. (b).

Braine, M.D.S. On two types of models of the internalization of grammars. In D.I. Slobin (Ed.), The ontogenesis of grammar. New York: Academic Press, 1971.

Chomsky, N. Lectures on government and binding. Dordrecht, Holland: Foris Publications, 1981.

Hall, B. Subject and object in modern English. Doctoral dissertation, MIT, 1965. (Published under B. Partee, (same title), New York: Garland, 1979.)

Jackendoff, R.S. Morphological and semantic regularities in the lexicon. Language, 51, 639-671.

Maratsos, M.P. How to get from words to sentences. In C. Aaronson & R. Rieber (Eds.), Perspectives in psycholinguistics. Hillsdale: Erlbaum, 1979.

Maratsos, M.P. & Chalkley, M. The internal language of children's syntax. In K.E. Nelson (Ed.), Children's language, Vol. 2. New York: Gardner Press, 1980.

Matthews, P.H. Review of Hornstein & Lightfoot (Eds.), Explanation in linguistics: The logical problem of language acquisition (1981). Journal of Child Language, 1983, 10, 491-493.

Roeper, T., Lapointe, S., Bing, J. & Tavakolian, S. A lexical approach to language acquisition. In S.L. Tavakolian (Ed.), Language acquisition and linguistic theory. Cambridge, Mass.: MIT Press, 1981.

Shibatani, M. The grammar of causative constructions: A conspectus. In M. Shibatani (Ed.), Syntax and semantics, Vol. 6: The grammar of causative constructions. New York: Academic Press, 1976.

Slobin, D.I. On the nature of talk to children. In E.H. Lenneberg & E. Lenneberg(Eds.), Foundations of language development, Vol. 1. New York: Academic Press, 1975.

Wasow, T. Comments on chapter by Baker. In Baker & McCarthy, 1981.

Wexler, K. & Culicover, P.W. Formal principles of language acquisition. Cambridge, Mass.: MIT Press, 1980.